SOLUTION FOR CHEMICAL MECHANICAL POLISHING AND METHOD OF MANUFACTURING COPPER METAL INTERCONNECTION LAYER USING THE SAME

Abstract of the Disclosure

A solution used for chemical mechanical polishing of a copper metal interconnection layer and a method of manufacturing a copper metal interconnection layer using the solution are provided. The method of manufacturing the copper metal interconnection layer includes the steps of forming a barrier layer along a stepped portion over the surface of the interdielectric layer having a recessed region; forming a copper seed layer along a stepped portion on the barrier layer, and exposing the barrier layer until exposing the surface of the interdielectric layer by chemical mechanical polishing using the solution `including an oxidizing agent, a pH controlling agent, a chelate reagent, and deionized water. The oxidizing agent is hydrogen peroxide (H_2O_2), an oxidizing agent of a ferric series, or an oxidizing agent of an ammonium series. The pH controlling agent is an acidic or a basic solution. The chelate reagent is diammonium sodium salt (DASS), citric acid, malic acid, gluconic acid, gallic acid, tannic acid, ethylenediaminetetraacetic (EDTA) or benzotriazole (BTA).